perform further processing based on the request message; and

provide the response message to the local server,

so that the local client device can request services that are provided by the remote client device by using the local and remote servers as intermediaries.

REMARKS

Improper Finality Of Prior Office Action

As a threshold matter, Applicant notes that the prior Office Action dated April 23, 2003 was incorrectly designated as being "Final", and thus Applicant requests that the Examiner withdraw the finality of the prior Office Action and treat this Amendment as responsive to a non-final Office Action. In particular, the Examiner rejected claims that were unamended based on a new ground of rejection that included a newly cited reference – for example, independent claim 10 had previously been rejected as being unpatentable over the Rossman reference in view of the Bui reference, but although it was unamended in Applicant's prior Amendment dated February 4, 2003, the Examiner has now changed the basis of rejection for unamended independent claim 10 so that it is now rejected on the basis of the Mendez reference in combination with other references. As MPEP Section 706.07 makes clear, however, it is improper to make an Office Action final when a new ground of rejection is used that "is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement" (MPEP, 706.07(a)), and neither of those conditions allowing the Office Action to be made final were satisfied in this case.

Overview

More generally, in the prior Office Action the Examiner objected to claim 36 as being dependent upon a rejected base claim, but indicated that the claim would be allowable if rewritten in independent form including all of the limitations from the claims on which it depended.

The Examiner also responded in the prior Office Action as follows: rejected claim 7 under 35 U.S.C. § 112, second paragraph as being indefinite; rejected claims 1, 2, 6,

7, 16, 18 and 32 under 35 U.S.C. § 102(e) as being anticipated by Mendez et al. (U.S. Patent No. 5,961,590); rejected claims 3, 8, 31, 33 and 37 under 35 U.S.C. § 103(a) as being unpatentable over Mendez in view of Bezaire et al. (U.S. Patent No. 5,758,088); rejected claims 4, 5, 17, 26-28 and 30 under 35 U.S.C. § 103(a) as being unpatentable over Mendez in view of Rossman (U.S. Patent No. 6,430,409); rejected claims 19 and 21-25 under 35 U.S.C. § 103(a) as being unpatentable over Mendez in view of Bui (U.S. Patent No. 6,412,007); rejected claims 10, 11 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Mendez in view of Rossman and Bui; rejected claim 29 under 35 U.S.C. § 103(a) as being unpatentable over Mendez in view of Craddock (U.S. Patent No. 6,351,771); rejected claims 9 and 34 under 35 U.S.C. § 103(a) as being unpatentable over Mendez in view of Bezaire and Rossman; and rejected claim 35 under 35 U.S.C. § 103(a) as being unpatentable over Mendez in view of Bezaire and Page et al. (U.S. Patent No. 5,329,619).

Applicant hereby amends claims 1, 4, 7, 11, 31, 32 and 36 in order to clarify the subject matter of the invention, and also adds new claims 38-42. Thus, claims 1-11 and 16-42 are now pending. In addition, Applicant hereby amends the specification as indicated.

Embodiments of the Present Invention

Embodiments of the present invention are directed to facilitating communications between devices (*e.g.*, consumer devices that are remote from each other) via one or more intermediate servers, such as to allow a client device to request that a service be provided and to assist in having another device perform the requested service in response. In some embodiments, the services may be requested and provided in a transparent manner such that the client device does not even know the identity or location of the other device that performs the service, and thus does not directly communicate with that other device. In some embodiments, at least two intermediate servers that communicate with each other are used to facilitate the provision of services, such as two intermediate servers that are remote from each other but that are each local to one of the devices. In such embodiments, the devices may communicate

only with their local intermediate server, with the intermediate servers inter-communicating to facilitate requested services being performed.

In some embodiments, the intermediate servers provide additional functionality to assist in the providing of services. For example, intermediate servers may query local devices with which they communicate to determine services available from those devices, and may then maintain a listing of available services that can be provided to other remote client devices via other intermediate devices so that those remote devices can request the services. In addition, in some embodiments the intermediate servers may also provide their own services to remote client devices. Intermediate servers may also provide various authorization functionality before allowing services to be requested and performed, as well as a variety of other functionality.

The Mendez Reference

Mendez is directed to a system in which various devices can each synchronize various of their data (*e.g.*, email) with a central global server. In one example embodiment, a computer on a local area network ("LAN") communicates with the central global server, with communications between the computer and the global server passing through a firewall for the LAN and a firewall at the location of the global server.

As the intermediate firewalls do not appear to perform any functionality over than allowing or preventing certain communications to pass through in the manner typical of a firewall (*e.g.*, based on predefined criteria), the local computer and the global server must directly contact each other and inter-communicate in order to exchange information – thus, Mendez is unrelated to the use of intermediate servers that allow a client device to request and receive services in a manner transparent to that client device. In addition, the intermediate firewalls do not appear to provide any additional functionality beyond that normally present in prior art firewalls, and thus do not provide any of the various additional types of functionality related to assisting in providing services as described and claimed in the present application.

The Bezaire Reference

Bezaire is directed to a system for sending emails and other communications to wireless devices. Bezaire appears unrelated to the use of intermediate servers that facilitate communications in the manner described and claimed in the present application, and in particular does not allow a client device to request and receive services in a manner transparent to that client device.

The Page Reference

Page is generally directed to techniques to allow inter-object communication in a computing environment via an intermediate broker. Page appears unrelated to the use of intermediate servers that facilitate communications in the manner described and claimed in the present application.

The Rossman Reference

Rossman describes a problem in the prior art that stems from wireless two-way data communication devices (*e.g.*, cell phones and two-way pagers) having closed proprietary systems in which they can only access information provided by the companies that provide those devices. In response, Rossman describes techniques for loading a software module on such wireless communication devices to enable them to access information in a non-proprietary manner from any server computer that is part of the same network as the device, by directly communicating with such server computers. In particular, the wireless communication device can directly contact such a server by specifying a resource locator that includes the address of the server, and thus obtain information from that server computer in a response message. In addition, Rossman discloses that the server computer may provide information about functionality that the server computer provides, so that the data communication device can request that the server provide such functionality in a similar manner directly from the server computer. The server computer can also provide address information for other server computers on the network so that the wireless communication device can similarly directly contact

such other server computers to obtain information. (Rossman: 3:61-4:12, 3:50-60, 4:33-5:7, 8:10-65, 10:28-39.)

Thus, Rossman merely describes how a communication device can directly access information from a server computer by specifying the address of that server computer and receiving a response directly from that server computer. Rossman appears unrelated to the use of intermediate servers that facilitate communications in the manner described and claimed in the present application, and in particular does not allow a client device to request and receive services in a manner transparent to that client device.

The Bui Reference

Bui is generally directed to authorizing data communication sessions that occur directly between a client and a server. (Bui, Abstract.) Bui appears unrelated to the use of intermediate servers that facilitate communications in the manner described and claimed in the present application.

The Craddock Reference

Craddock is generally directed to providing information and services to users by employing an intermediate architecture that performs various functions, such as automatically converting data formats and transportation protocols as appropriate. (Craddock, 3:52-4:25.) Craddock similarly appears unrelated to the use of intermediate servers that facilitate communications in the manner described and claimed in the present application.

Analysis

Applicant thanks the Examiner for the indication that dependent claim 36 contains allowable subject matter. Claim 36 has now been rewritten in independent form, including all of the limitations from the claims on which it depended, and thus is in allowable form. In addition, new claims 38-42 have been added that are similar to previous independent claims 1, 7, 10, 11 and 16, respectively, and that also each recite

similar claim elements to those previously recited in dependent claim 36. Thus, Applicant believes that these newly added claims are each allowable for at least the same reasons as claim 36.

The Examiner has rejected claim 7 as indefinite on the basis of references to "the other device" after an initial recitation of "another device", which the Examiner has indicated lacks sufficient antecedent basis. While Applicant disagrees that these terms are indefinite, claim 7 as amended no longer recites "the other device", and thus this rejection is mooted.

The Examiner has also rejected each of the previously pending claims as being unpatentable over Mendez, either alone or in combination with other references. Applicant respectfully traverses this rejection, and notes that each of the previously pending claims as rejected included features and provided functionality not disclosed by Mendez or the other references as cited. For example, each of the previously pending claims generally recited a communications architecture in which a local client device communicates with a local intermediate server to request services from a remote device, with the local intermediate server facilitating the service requests by forwarding them as appropriate over an established connection to a remote intermediate server associated with the remote device. In addition, various of the pending claims recited additional functionality performed by the intermediate servers, such as (1) the intermediate server proximate to the remote device maintaining a listing of services available from that remote device so that it can be provided to client devices (see, for example, independent claims 10 and 11), such as (2) the intermediate servers being necessary to enable communications between the client device and the remote device since the client device is able to communicate only with other local devices (see, for example, claims 16-30), such as (3) the intermediate servers providing transparent communications between the client device and the remote device by acting as a surrogate for the client or remote devices (see, for example, claims 31-33 and 1-6), and such as (4) the intermediate servers themselves providing services to client devices in addition to the services available from remote devices (see, for example, claim 34).

While the Examiner asserted that Mendez discloses such an architecture, Applicant can find no teaching or suggestion in Mendez or any of the other cited references of any intermediate devices performing any such activities – instead, the intermediate firewalls in Mendez on which the Examiner bases his rejection are merely typical prior art firewalls that intercept communications between a sender and an intended recipient and determine whether to allow those communications to continue. Such intermediate firewalls do not themselves establish connections with other remote devices, nor do they perform any of the additional recited types of functionality discussed in the preceding paragraph. Thus, each of the previously pending claims as rejected was allowable over the cited references.

Moreover, the pending claims have been amended to clarify the subject matter recited, with the claims as amended clearly patentable over the cited references. For example, independent claims 1, 7, 31 and 32 as amended further clarify the role of the intermediate servers in assisting a local client device to request and receive services from a remote device without the local client device needing to directly address the remote device or even to know the identity or location of the remote device. In particular, claim 1 as amended recites "under control of the first consumer device, requesting from the first intermediate server a listing of services available via the first intermediate server; receiving from the first intermediate server a listing of multiple available services; and after receiving the listing of multiple available services, requesting from the first intermediate server one of the multiple available services, the requested service available to be provided by the remote second device" (emphasis added). Thus, the consumer device merely communicates with its local intermediate server to request a service available via that server, and that intermediate server facilitates the performance of the service from a remote device in a manner transparent to the consumer device. Claim 7 recites similar claim elements. Independent claims 31 and 32 contain claim elements similar to those of claim 1, as the claims previously depended from claim 1 before being rewritten in independent form, and additionally recite, respectively, that "communications from the first consumer device to the remote second device are forwarded along the link by the first and second servers in a manner

transparent to the first consumer device . . . such that the first consumer device and the second device appear to each other to be local" (emphasis added) and "communications from the first consumer device to the remote second device are forwarded along the link by the first and second servers in a manner transparent to the first consumer device, the forwarding in the transparent manner including the first server device representing the second device in communications with the first consumer device over the first communicative connection and including the second server device representing the first device in communications with the second device over the second communicative connection" (emphasis added).

In addition, independent claim 8 includes additional recitations regarding such actions of an intermediate server device, including that the intermediate server is configured to "provide information to the client device about available services by, obtaining information from the second server device about services available via the second server device; and sending to the client device information about available services that includes the obtained information from the second server device" (emphasis added) and is further configured to "facilitate performance of services for the client device by, forwarding service requests from the client device to the second server device for one or more of the available services whose information was obtained from the second server device and sent to the client device; and forwarding responses to at least some of the service requests from the second server device to the client device". Independent claim 16 further recites that the local client device is "designed to communicate only with other local client devices" and that a local intermediate server is able to communicate with the local client device to forward requests for services to a remote device via an intermediate server local to that device.

Conversely, neither Mendez nor the other cited references appear to teach or suggest using intermediate servers in the manner recited in the claims. Instead, in Mendez, a sending device (*e.g.*, the Desktop Computer 134 on the LAN in Figure 1) sends a communication directly to a destination device (*e.g.*, the Remote Global Server 132 in Figure 1), with the intermediate firewalls providing no assistance in the communication other than determining whether to allow the communications to pass

through or not. The Examiner has not cited any portion of the prior art references that teach or suggest the recited aspects of the claims – instead, in addressing the previously discussed actions of the intermediate servers that are recited as being performed in a transparent manner, including having those servers represent their local devices in communications with others, the Examiner has cited the following portions of Mendez.

> Similar to the general synchronization module 425 [of the Desktop Computer 134 on the LAN 110], the general synchronization module 515 [of the Global Server 106] includes routines for examining the version information 148 and the last synchronization signature 435 (FIG. 4) to determine which versions have been modified and the changes made. It will be appreciated that the general synchronization module 515 may maintain its own last synchronization signature 435 copy (not shown) or may request the last synchronization signature 435 from the base system 146 or 118. The general synchronization module 515 further includes routines for forwarding workspace data 120 determined to be modified to the general synchronization module 425, and routines for receiving preferred versions of workspace elements of workspace data 136 or 116 or just the changes from the general synchronization module 425. . . .
>
> For a second example, the user may select an exemplary document in the LAN 110 to be synchronized. The general synchronization module 425 [of the Desktop Computer 134 on the LAN 110] will forward the document to the global server 106. Similarly, the user may select the same document for synchronization on the remote terminal 102. The general synchronization module 515 [of the Global Server 106] will forward the document to the remote terminal 102. If changes were made to the documents independently, then the content-based synchronization module 430 will examine the content of the documents to determine if a conflict exists. If no conflict exists, then as described above, the general synchronization modules 425 and 515 will merge the documents. Otherwise, if a conflict does exist, the content-based synchronization module 430 will reconcile the changes and then the general synchronization modules 425 and 515 will forward the reconciled changes to each other.
> Mendez, 9:8-23, 11:41-56.

However, these cited references are unrelated to any aspect of the intermediate firewalls, as they are discussing synchronization components of the Desktop Computer and Global Server (rather than the LAN and Global firewalls 114 and 112, which were cited by the Examiner as corresponding to the intermediate server devices), and thus cannot teach or suggest actions of the intermediate firewalls in transparently facilitating communications between the client device and the remote device, such as by representing the client device or remote device in communications with other remote devices. In addition, the Examiner has ignored recitations in pending claims that the local client device is "designed to communicate only with other local client devices" and that a local intermediate server is thus needed to communicate with the local client

device in order to forward requests for services to a remote device, such as is recited in claim 16, with none of the devices in Mendez appearing to satisfy that claim element.

Moreover, even if the intermediate firewalls of Mendez were somehow modified to transparently facilitate communications between the client device and the remote device and to additionally perform the other recited aspects of their operation, there is no suggestion or motivation in any of the cited references for *client devices* to perform claim elements that are recited, such as "requesting from the first intermediate server a listing of services available via the first intermediate server" as is recited in claim 1.

Simply put, none of the devices in any of the cited references do anything similar to numerous of the claim elements because the cited references describe systems that operate in different manners and for different purposes than the described invention – there is simply no reason that the devices in the cited references would have any motivation to perform the recited claim elements, as they are not directed to the recited architecture that allows a local client device that communicates only with other local devices to identify and request services to be provided by remote devices.

Moreover, the other cited references do not correct these failings of Mendez. As described in greater detail in Applicant's previous Amendment, Rossman makes clear that its described techniques are intended to allow a client device to directly access a remote computer server, such as by stating that "a user can access an application from anywhere as long as the user has a two-way communication device that can communicate with that server computer" (Rossman, 8:31-33, emphasis added), and in particular by the communication device specifying resource locators that directly address the server computer from which information will be received. Bezaire appears to be completely unrelated to requesting services by a client device to be provided by a remote device, and instead merely discusses techniques for forwarding email messages. While such email messages may pass through one or more intermediate mail servers and/or wireless service provider servers while en route, there is no suggestion or motivation that the intermediate servers would perform operations as recited, such as to "provide information to the client device about available services by,

obtaining information from the second server device about services available via the second server device" as is recited in claim 8, or more generally to represent the client device or remote service-providing device in such communications. The other cited references similarly do not appear to disclose using intermediate servers in the claimed manner, and thus these pending claims as amended are allowable for at least these reasons.

In addition, at least some of the pending claims recite additional functionality performed by the intermediate servers, with such functionality further distinguishing the claims from the cited references. For example, claims 10 and 11 recite that an intermediate server maintains a listing of the services available from a device to which it is connected and provides that list to the client device via the other intermediate server upon request. In this way, by using intermediate servers the client device can discover and access available services without knowing who provides those services. None of the cited references appear to teach or suggest similar functionality. While the Examiner asserts that Rossman provides similar functionality, the passage cited by the Examiner merely discusses that a server computer may specify particular servers that have available functionality or information so that a communication device can directly access those servers. Applicant can find no mention in Rossman of the server computer gathering and maintaining information for other devices that can be accessed by the client device via the intermediate servers in the recited manner.

The pending dependent claims include the features of those claims from which they depend, and are thus allowable for the same reasons as those claims. Moreover, the pending dependent claims also recite additional features lacking in the cited references, and are thus allowable on the basis of those features as well, although these additional features are not enumerated here for the sake of brevity.

Summary

In view of the foregoing, the claims pending in the application comply with the requirements of 35 U.S.C. § 112 and patentably define over the prior art. If the Examiner believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 264-6380.

Respectfully submitted,
Perkins Coie LLP

Date: 7/23/03

James A. D. White
Registration No. 43,985

Correspondence Address:
Customer No. 25096
Perkins Coie LLP
P.O. Box 1247
Seattle, Washington 98111-1247
(206) 583-8888

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

1. (Twice Amended) A method for enabling a first consumer device that is able to communicate only with local devices to access services of a remote second device, comprising the steps of:

enabling establish~~ing~~ment of a link between the first consumer device and the remote second device ~~that allows the first consumer device to access services from the remote second device~~ via multiple intermediate servers, by

establishing a first communicative connection between the first consumer device and a first intermediate server that is local to the first consumer device; and

establishing a second communicative connection between the first intermediate server and a second intermediate server that is remote from the first server and that is local to the second device; and

establishing a third communicative connection between the second intermediate server and the second device,

and wherein the ~~established~~ link includes the first, second and third communicative connections, and wherein communications from the first consumer device to the remote second device are forwarded along the link by the first and second intermediate servers in a manner transparent to the first consumer device;

under control of the first consumer device,

requesting from the first intermediate server a listing of services available via the first intermediate server;

receiving from the first intermediate server a listing of multiple available services; and

after receiving the listing of multiple available services, requesting from the first intermediate server one of the multiple available services, the requested a

service ~~that is~~ available ~~from~~ to be provided by the remote second device~~, the requesting by the first consumer device and utilizing the established link~~; and

after the first intermediate server forwards an indication of the requested service to the remote second device via the established link, performing the requested service at the remote second device.

4. (Twice Amended) The method of claim 1 ~~further comprising, after the establishing of the second communicative connection, the step of reporting to the first device a~~ wherein the listing of multiple available services received by the first consumer device from the first intermediate server are services available from the second device.

7. (Twice Amended) An apparatus for accessing services of ~~another~~ a remote device via one or more intermediate servers, comprising:

a first module capable of initiating establishment of a first communicative connection to a local intermediate server and~~,~~ of initiating establishment of at least a second communicative connection between the local intermediate server and ~~a~~ the remote ~~server proximate to the other device, and of initiating establishment of a third communicative connection between the remote server and the other~~ device; and

a second module capable of receiving from the local intermediate server a listing of multiple services available via the local intermediate server and of requesting from the local intermediate server one of the multiple available services, the requested ~~a~~ service available to be performed from the ~~other~~ remote device ~~via the first, second, and third communicative connections~~,

so that the ~~other~~ remote device will perform the requested service after receiving notification of the request via the first and second communicative connections.

11. (Twice Amended) A first client apparatus for accessing services supplied by a remote second apparatus, comprising:

means for initiating establishment of a first link between the first client apparatus and a local first server;

means for transmitting a connection command over the first link to the local first server, the connection command being operative to request a connection with a remote second server and comprising a user identification, and a password;

means for receiving notification from the local first server over the first link of acceptance of the connection command by the remote second server, the receiving of the acceptance notification after a second link is established between the local first server and the remote second server~~, after the connection command is transmitted over the second link from the first server to the second server,~~ and after the remote second server verifies authorization of the user identification and password;

means for requesting a listing from the local first server of one or more services available from the remote second apparatus based at least in part on a listing maintained by ~~, wherein~~ the remote second server ~~maintains such a listing based on~~ that includes information obtained from the remote second apparatus over a third link communicatively coupling the remote second server to the remote second apparatus~~, wherein the first server obtains the listing from the second server~~;

means for receiving from the local first server the requested listing after the local first server obtains that listing from the remote second server; and

means for requesting a service from the listing to be performed by the remote second apparatus by relaying a service request to the remote second apparatus via the local first server, such that the requested service will be performed by the remote second apparatus.

31. (Amended) ~~The~~ A method ~~of claim 1~~ for a first consumer device to access services of a remote second device, comprising:

establishing a link between the first consumer device and the remote second device that allows the first consumer device to access services from the remote second device, by

establishing a first communicative connection between the first consumer device and a first server that is local to the first consumer device;

establishing a second communicative connection between the first server and a second server that is remote from the first server and local to the second device; and

establishing a third communicative connection between the second server and the second device,

wherein the established link includes the first, second and third communicative connections and wherein communications from the first consumer device to the remote second device are forwarded along the link by the first and second servers in a manner transparent to the first consumer device, ~~wherein~~ the forwarding ~~of communications between the first consumer device and the second device along the established link~~ in ~~a~~ the transparent manner ~~is~~ such that the first consumer device and the second device appear to each other to be local; ~~.~~

requesting a service that is available from the second device, the requesting by the first consumer device and utilizing the established link; and

performing the requested service at the second device.

32. (Amended) ~~The~~ A method ~~of claim 1~~ for a first consumer device to access services of a remote second device, comprising:

establishing a link between the first consumer device and the remote second device that allows the first consumer device to access services from the remote second device, by

establishing a first communicative connection between the first consumer device and a first server that is local to the first consumer device;

establishing a second communicative connection between the first server and a second server that is remote from the first server and local to the second device; and

establishing a third communicative connection between the second server and the second device,

wherein the established link includes the first, second and third communicative connections and wherein communications from the first consumer

device to the remote second device are forwarded along the link by the first and second servers in a manner transparent to the first consumer device, ~~wherein~~ the forwarding ~~of communications between the first consumer device and the second device along the established link~~ in ~~a~~ the transparent manner includinges the first server device representing the second device in communications with the first consumer device over the first communicative connection and includinges the second server device representing the first device in communications with the second device over the second communicative connection; ~~.~~

requesting a service that is available from the second device, the requesting by the first consumer device and utilizing the established link; and

performing the requested service at the second device.

36. (Amended) ~~The~~ A server device ~~of claim 8~~ that is capable of communicating over a first communications link with a client device and over a second network link with a second server device, comprising:

a communications link interface for communicating between the server device and the client device using ~~wherein communications to the client device over the established communications link use~~ SDTP protocol;

a network interface for communicating between the server device and a second server device using ~~, and wherein the communications to the second server device over the established network link use~~ HATP protocol; and ~~.~~

a processing unit, being operable to send and receive data over the communications link interface and over the network interface, the processing unit being further operable to:

establish a communications link for data communication through the link interface with the client device;

establish a network link for data communication through the network interface to the second server device;

provide information to the client device about available services by,